The Impact of Climate Change on Desertification in Auchi, EDO State, Nigeria

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ABSTRACT

This paper investigates the impact of climate change on desertification in Auchi, Edo State, Nigeria. Climate change can be described as the technical term used to denote significant and long-term alterations in the statistical distribution of weather patterns over decades to millions of years. Desertification refers to land degradation in arid, semi-arid, and dry sub-humid areas resulting from climatic variations and human activities. This paper identified the natural and anthropogenic causes of desertification in Auchi, the major climatic indices accelerating desertification in Auchi, the impact of desertification on the environment of Auchi, and the adaptation, and mitigation strategies in place at Auchi, Edo State, Nigeria. To achieve these objectives, the researcher used both primary and secondary research methods to collect the data required for the study. Four hundred (400) respondents which represent 0.16% (zero point one six percent) of the population in the study area were considered. Following the above, four hundred (400) questionnaires were administered in the study area. The preliminary and actual field surveys revealed that there are 25 communities in the study area, and that the population is unevenly distributed across the study area. Following the above observation, the questionnaires were distributed in the various communities in reflection of their population sizes. The data obtained were analysed using tables, graphs and, percentages. The results reveal the natural and anthropogenic causes of desertification in Auchi, the major climatic indices accelerating desertification in Auchi, the impact of desertification on the environment of Auchi, and the adaptation and mitigation strategies in place at Auchi, Edo State, Nigeria. Based on the findings of this paper, the following actionable policy recommendations are made: effective and regular creation and promotion of community environmental education on climate change and desertification, cover cropping, irrigation, afforestation, rotational cropping/grazing, controlled lumbering, law against bush burning, controlled use of wood as fuel, planting of drought resistant crops, artificial recharge of water, enforcement of environmental regulation, adoption of environmental building codes, implementation of green building initiatives, and creation of shelter belt in Auch, Edo State, Nigeria. This paper is therefore, concluded by imploring the governments at all levels to implement the list of recommendations made by the researcher.

Keywords: Impact, Climate change, Desertification.

INTRODUCTION

This paper investigates the impact of climate change on desertification in Auchi, Edo State, Nigeria. Climate change, characterized by long-term shifts in temperatures and weather patterns, poses an unprecedented global challenge with far-reaching effects on human societies and the general environment. Climate change as a phenomenon driven largely by anthropogenic activities, its manifestations, including rising temperatures, altered precipitation patterns, increased frequency and intensity of extreme weather events, and sea-level rise, are becoming increasingly evident across the globe (IPCC, 2023). Climate change, according to Adewole and Afusat (2017), can be perceived as a change in the climate, which can be seen by changes in the variability of its properties, and that stayed for an extended period of time, simply decades or longer due to both anthropogenic and natural activities. Climate change is the long-term alteration of temperature, precipitation, and weather

patterns, largely driven by human-induced greenhouse gas emissions (IPCC, 2021). From the foregoing, climate change can be described as the technical term used to denote significant and long-term alterations in the statistical distribution of weather patterns over decades to millions of years.

Desertification, as defined by the United Nations Convention to Combat Desertification (UNCCD), refers to land degradation in arid, semi-arid, and dry sub-humid areas resulting from climatic variations and human activities (UNCCD, 2017). In a similar vein, the Oxford Advance Learner's Dictionaries (2025), conceives of desertification as the spread of desert-like conditions, particularly in arid or semi-arid areas, due to climatic change and the influence of human activities. From the above, it can be seen as the process whereby land turns into desert-typically through natural processes or human activities that degrade the soil and vegetation until the area becomes more desert-like. Desertification is not limited to the advance of sand dunes but encompasses processes such as soil erosion, loss of vegetation, and decline in land productivity. Desertification has traditionally been viewed as a phenomenon exclusive to the Sahelian and Sudan savanna belts of Northern Nigeria. However, recent empirical evidence indicates a steady southward "creeping" of desert-like conditions at an estimated rate of 0.6 km to 1.5 km per annum (Olagunju, 2015; Mahmoud *et al.,* 2022). Auchi, the headquarters of Etsako West Local Government Area, Edo State, is increasingly becoming a focal point for studies on this transition. Situated in the "derived savanna" or "forest-savanna mosaic" zone, Auchi is currently experiencing a dual crisis of severe gully erosion and incipient desertification, driven by a synergy of climatic shifts and intense anthropogenic pressure (Ajayi *et al.,* 2019). In Auchi, desertification manifests primarily through severe gully erosion, deforestation, and declining soil fertility, all of which are intensified by climatic shifts and unsustainable land use.

Auchi lies within the dry sub-humid climatic zone, characterized by relatively high annual rainfall but increasing variability. Rainfall now occurs in shorter, more intense bursts, producing destructive runoff that rapidly incises gullies in the sandy soils of the Benin Formation. These soils, unconsolidated and fragile, are highly susceptible to erosion when vegetation cover is removed. The town's rapid urban expansion has worsened this vulnerability, as deforestation for farming, and fuel wood, sand harvesting, and unregulated construction disturb soil stability and reduce natural drainage. Human factors such as poor stormwater management and cultivation on steep slopes further accelerate and exacerbate land degradation, transforming heavy rainfall into erosive energy that deepens gullies and undermines infrastructure (World Bank, 2015).

Historically, Nigeria has experienced desertification since the droughts of the 1970s, with indicators such as declining vegetation, dust storms, and reduced agricultural productivity spreading southward from the Sahel into the Sudan and Guinea savanna zones (Oladipo, 1993). While the far north faces advancing sand dunes, the middle belt and southern states like Edo have witnessed erosion-driven crises, particularly in Auchi, where gully complexes have destroyed homes, roads, and farmland. National policy responses, such as Nigeria's National Action Programme under the UNCCD, recognize that desertification is not confined to the arid north but includes erosion-driven land degradation in sub-humid regions (Federal Ministry of Environment, 2015).

Specifically: first, the extensive loss of vegetation covers due to urbanization and unsustainable land-use practices, a form of land degradation confirmed to be accelerating in Edo State (Oshim *et al.*, 2023; NDVI-Based Assessment, 2025) exposes the highly erodible soils to intense seasonal rainfall, resulting in severe and rapidly advancing gully and sheet erosion (Mean Rate of Gully Head Advancement in Edo State, 2017). This process directly undermines the foundations of buildings, roads, and utilities, leading to structural collapse and immediate threats to public safety and service continuity. Second, the built environment suffers continuous abrasion and mechanical damage from Harmattan dust, a regional atmospheric consequence of desertification (Chukwuma *et al.*, 2023; Ochei *et al.*, 2023), which infiltrates and clogs critical mechanical and electrical systems, causing chronic material deterioration, reduced appliance efficiency, and significantly inflating long-term maintenance costs. The absence of recent, specific data quantifying the extent of infrastructure damage and the economic costs associated with this dual-threat profile in Auchi prevents effective and sustainable engineering, urban planning, and governmental intervention (Li *et al.*, 2021)

Climatic influences are central to this process. Climate change has increased the frequency of extreme rainfall events across West Africa, raising peak runoff and erosion risk even where annual totals remain similar (IPCC, 2019; NiMet, 2021). Longer dry seasons weaken vegetation and leave soils exposed to erosion when rains return,

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while rising temperatures increase evaporation, evapotranspiration and soil moisture deficits, reducing soil cohesion and making surfaces more prone to crusting and runoff. These compound events—heat stress followed by intense rainfall accelerate erosion and deepen gullies, pushing Auchi's environment along a desertification pathway.

Statement of the Problem

The impact of climate change on desertification in Auchi is not merely an environmental issue but a socio-economic threat. The degradation of land has led to a reduction in agricultural yields, a loss of biodiversity, and the destruction of infrastructure through gully expansion (Ajayi *et al.,* 2019). Understanding the nexus between these climatic variables and local land-use practices is critical for developing resilience strategies in a region that was once considered immune to desert-like conditions.

The problem of desertification in Auchi, Edo State, has become increasingly severe due to the combined effects of climate change and unsustainable human activities. Desertification is manifested in Auchi through widespread gully erosion, declining soil fertility, and loss of vegetation. The fragile sandy soils of the Benin Formation, coupled with steep slopes, make the area highly susceptible to erosion when exposed to intense rainfall and reduced vegetal cover. Climate change has altered rainfall patterns in Nigeria, producing shorter but more intense storms separated by longer dry spells, which generate destructive runoff and accelerate gully formation. Rising temperatures further exacerbate soil moisture deficits, weakening soil cohesion and leaving land vulnerable to degradation (IPCC, 2019; NiMet, 2021).

World Bank, (2015) observed that human activities have compounded these climatic stresses. Rapid urban expansion, deforestation for fuel-wood, sand harvesting, and poor storm-water management have disturbed soil stability and reduced the natural resilience of the ecosystem. Settlements have expanded onto vulnerable slopes and drainage corridors, increasing exposure to erosion hazards. As gullies deepen and expand, they destroy homes, roads, and farmland, undermining livelihoods and threatening critical infrastructure. Historically, desertification in Nigeria was viewed as a northern problem linked to advancing sand dunes, but evidence now shows that erosion-driven land degradation is spreading into the middle belt and southern states, including Edo (Oladipo, 1993; Federal Ministry of Environment, 2015).

The interaction of human and climatic factors makes Auchi a critical case study for understanding the broader impact of climate change on desertification in Nigeria. The town exemplifies how desertification manifests beyond the Sahel, through erosion-dominated degradation in dry sub-humid zones. Its vulnerability is heightened by rapid urbanization, poor storm-water management, and unsustainable land use, which amplify the effects of climate variability. The consequences are not only environmental but also socio-economic, as gully erosion threatens infrastructure, livelihoods, and water resources (World Bank, 2015; UNCCD, 2017; World Bank, 2023). Studying Auchi therefore provides insights into how climate change drives land degradation in fragile ecosystems and highlights the urgent need for integrated adaptation strategies that combine improved land management, reforestation, and climate-resilient urban planning.

The persistence of these problems in Auchi highlights a critical gap between national policy frameworks and local realities. Despite Nigeria's National Action Programme to Combat Desertification, the town continues to experience severe land degradation, indicating inadequate adaptation strategies and weak enforcement of sustainable land-use practices. The problem is therefore twofold: climate change is intensifying rainfall variability and temperature extremes, while human activities are accelerating land degradation through poor resource management. Unless urgent interventions are implemented, desertification in Auchi will continue to expand, threatening food security, economic stability, and the long-term sustainability of the environment. This underscores the need for research that not only documents the extent of climate-induced desertification but also provides evidence-based recommendations for sustainable land management, climate-resilient urban planning, and community adaptation. By focusing on Auchi, the study contributes to a broader understanding of how desertification manifests in dry sub-humid zones, extending beyond the Sahel, and demonstrates the urgency of integrating climate change considerations into local and national development planning.

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Aim and Objectives of the study

The overall aim of this paper is to examine the impact of climate change on desertification in Auchi, Edo State, Nigeria. The specific objectives are to:

i examine the natural and anthropogenic causes of desertification in Auchi;
ii examine the major climatic indices accelerating desertification in Auchi;
iii.examine the impact of desertification on the environment in Auchi; and
iv.examine the adaptation and mitigation strategies in place at Auchi.

The Study Area

The study area is Auchi and it comprises of all the 25 communities of Auchi which according to Ajayi, Ibrahim, Brai, & Seghosime (2019) are: Usogun, Akpekpe, Igbei, Ikelebe, Oshiomole, Ughidane, Egelesor, Osomeke, Oki, Idaniyeluwa, Oluedide, Omemi, Idanilesi, Isami, Aleogbomi, Osuali, Oguokhai, Akharuma, Ozomode, Okilokhai, Igieboi, Aimanesi and Utsokwili, Imeke, and Iyakpi. Auchi is a very important settlement in Edo State, Nigeria. It is the administrative headquarters of Etsako-West LGA, Afemai Ethnic group and Edo North Sentorial District. The town of Auchi is located within Latitudes 6º48'N and 7º12' of the Equator and Longitudes 6º11'E and 6º24'E of the Greenwich Meridian. It is borderded by; Uzauire (Imeke and Jattu); Ibie-Nafe:; Sabo-Iyakpi; Aviele; Ivbiaro; Warrake and Ikpeshi (Orji & Ologunorisa, 2016).

The study area serves as a strategic gateway between Southern and Northern Nigeria. Its topography is characterized by the rugged Kukuruku Hills, which contribute to high velocity runoff during rainfall events. Historically, the region was dominated by lush rainforests; however, it has transitioned into a derived savanna characterized by sparse tree cover and dominant grass species, a primary indicator of land degradation and encroaching aridity.

LITERATURE REVIEW

The conceptual framework for this study is built upon the intricate interrelationships between environmental drivers and site-specific vulnerabilities. At the core of this framework is the definition of desertification provided by the UNCCD (2017), which identifies land degradation in dry sub-humid areas as a consequence of both climatic variations and anthropogenic activities. Within the context of Auchi, climate change serves as a primary external driver, characterized by long-term shifts in temperature and precipitation patterns. According to the IPCC (2021), these shifts are increasingly driven by greenhouse gas emissions, resulting in weather extremes that manifest in Edo State as erratic rainfall and rising diurnal temperatures. These climatic variables do not act in isolation; rather, they intensify existing physical processes, where heavy rainfall events generate high-velocity runoff that incises the fragile, sandy soils of the Kukuruku Hills, leading to the rapid expansion of gully systems (World Bank, 2015; NiMet, 2021).

The framework further positions human activities as the second critical set of drivers that exacerbate the state of the land. In Auchi, rapid urbanization and population pressure have led to unregulated construction on vulnerable slopes and the systematic removal of vegetation for timber and fuelwood. This deforestation strips the soil of its protective canopy, a process that the FAO (2011) identifies as a precursor to accelerated erosion and soil desiccation. When these anthropogenic pressures interact with climatic stressors such as prolonged dry seasons that reduce vegetative buffers, the result is a significant decline in soil cohesion and fertility (IPCC, 2019; World Bank, 2023;). Furthermore, poor stormwater management in built-up areas channels runoff into concentrated flows, which serves as a mechanical catalyst for land degradation, effectively "creeping" desert-like conditions into a region historically classified as forest-savanna mosaic (Federal Ministry of Environment, 2015).

Ultimately, the framework illustrates a series of environmental, social, and economic outcomes fueled by a negative feedback loop. Environmentally, the expansion of gullies and the loss of topsoil reduce the land's capacity to support agriculture, while socially, communities in Auchi face displacement and the loss of ancestral heritage sites. Economically, Oladipo (1993), noted that the degradation of primary resources undermines livelihoods, forcing a shift in resource allocation toward costly erosion control and rehabilitation rather than

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sustainable development. By linking climate change and human activities as dual drivers mediated by Auchi's specific geomorphology, this framework underscores the necessity for an integrated approach to land management. It highlights that desertification is no longer a localized Sahelian threat but a converging crisis in Nigeria's southern sub-humid zones, requiring adaptation strategies that combine reforestation, climate-resilient urban planning, and improved drainage infrastructure to restore ecological stability.

History of Desert Encroachment in Nigeria

The history of desert encroachment in Nigeria dates back to the devastating droughts of the 1970s (specifically 1971–1973), which accelerated the loss of vegetative cover in the northern "frontline" states like Yobe, Borno, and Sokoto. By the early 2000s, it became evident that the northern boundaries of the Sahara were not static. Studies by the Federal Ministry of Environment (2001) and later updates by Emeribe *et al.,* (2022) confirm that as the North becomes increasingly desiccated, the ecological boundaries are shifting southwards. Auchi, being in the northernmost part of Edo State, acts as a "buffer zone" that is now absorbing the ecological stress of this southward migration.

Climatic Influences

Climate change acts as a catalyst for these local stressors. In Edo North, farmers have reported notable evidences of climatic shifts, including:

Temperature Extremes: Increased diurnal temperatures (reaching above 30°C) accelerate evaporation, and evapotranspiration rates and soil desiccation (Emeribe *et al.*, 2022).

Erratic Rainfall Patterns: While total annual rainfall remains high (above 1,500mm), its distribution has become unpredictable. The "August break" is often longer, and early-season rains are frequently followed by dry spells that kill germinating seeds, a condition known as "hydro-meteorological drought" (Butu & Emeribe, 2015; Emeribe *et al.*, 2022; UNDP. 2023).

Strong Wind Events: Increased wind speeds during the dry season facilitate the movement of dust and the removal of topsoil, mirroring the aeolian processes found in desert regions (Butu & Emeribe, 2015; Emeribe *et al.*, 2022).

Human Factors (Anthropogenic Drivers)

The transition of Auchi's landscape from forest to semi-arid status is largely attributed to human activities such as:

Deforestation: The felling of trees for timber and fuelwood has stripped the soil of its protective canopy. Between 1990 and 2016, Edo State lost thousands of hectares of forest, leading to a direct correlation between vegetation loss and increased soil temperature (World Health Organization (FAO, 2021 & 2022; WHO. 2021; World Bank, 2023).

Unsustainable Agriculture: Traditional "slash-and-burn" methods and over-cultivation on marginal lands have depleted soil nutrients, making the land more susceptible to wind and water erosion (Ajayi *et al.,* 2019; FAO, 2021 & 2022).

Urbanization and Poor Infrastructure: The lack of proper drainage systems in Auchi has converted rainfall into destructive flash floods, which initiate gully erosion often the precursor to total land abandonment and subsequent desertification (Orji & Ologunorisa, 2016; World Health Organization (WHO). 2021; World Bank, 2023).

MATERIALS AND METHODS

The data required for this study were collected from both primary and secondary sources. The primary source formed the major source of data needed for this paper. The primary data were collected by the use of structured

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questionnaire administration and personal observation in the field. At present (2026), the projected population of the study area (Auchi) is 255,600 people (after, NPC, 2006). Out of this projected population figure, 400 respondents which represent 0.16% (zero point one six percent) of the population in the study area were considered. Following the above, four hundred questionnaires were administered in the study area. The preliminary and actual field surveys revealed that there are 25 communities in the study. The preliminary and actual field surveys also revealed that population is not evenly distributed across the 25 communities in the study area. Owing to the above observation, the questionnaires were distributed in the various communities in this proportion: Usogun (20), Akpekpe (18), Igbe (18) , Ikelebe (28), Oshiomole (20), Ughidane (14), Egelesor (14), Osomeke (14), Oki (16), Idaniyeluwa (14), Oluedide (12), Omemi (14), Idanilesi (14), Isami (16), Aleogbomi (14), Osuali (16), Oguokhai (18), Akharuma (18), Ozomode (14), Okilokhai (12), Igieboi (14), Aimanesi (16), Utsokwili (14), Imeke (18), and Iyakpi (22). All the four hundred questionnaires were retrieved with passion and perseverance and used for the study. Random sampling technique was used to select the respondents for interview. Questions were asked on the causes of climate change, the major causes of desertification in the study area, the major effects of desertification on the environment of Auchi, and the adaptation strategies implemented by the inhabitants to mitigate the effects of climate change on desertification in Auchi, Edo State, Nigeria.

The secondary data used in this paper include textbooks, internet, articles in journal publications, magazine, gazetteers, and conference papers. The data collected were carefully collated and analysed using tables, frequencies and percentages.

RESULTS AND DISCUSSION

The field survey carried out on the impact of climate change on desertification in Auchi, Edo State, Nigeria, shows that climate change has a profound impact on desertification in uchi, Edo State, Nigeria, and that the impact is critical to land, water, infrastructure, settlement, agricultural productivity, and the overall socioeconomic development of the people and the general ambient of Auchi.

The Natural and Anthropogenic Causes of Desertification in Auchi

The field survey shows the impact of climate change on desertification, in Auchi, Edo State, Nigeria. The survey further shows that these natural and anthropogenic causes of desertification in Auchi are widespread. Table 1 shows that changes in climate with 89 (22.25%) polled the highest number of respondents and it is followed by frequent drought with 56 respondents which represents 14.00% of the sample population. Deforestation polled 54 (13.50%) of the sample population, while shift in climatic belt had 53 respondents which represent 13.25% of the sample population in the study area. Over-cultivation had 50 (12.50%), while bush burning, and over-cultivation, grazing recorded 49 (12.25%) each of the sample population in the study area. Table 1 further explains the natural and anthropogenic causes of desertification in Auchi. This finding is singing a concordant tune with the earlier findings of Butu & Emeribe, 2015; Ajayi *et al.,* 2019 Emeribe *et al.*, 2022: World Bank, 2023 that natural and anthropogenic factors are the drivers of desertification.

Table 1: The Natural and Anthropogenic Causes of Desertification in Auchi

The Natural and Anthropogenic Causes of Desertification in Auchi	Frequency	Percentage (%)
Changes in climate	89	22.25
Shift in climatic belt	53	13.25
Frequent drought	56	14.0
Bush burning	49	12.25
Deforestation	54	13.50
Over-cultivation	50	12.50
Over-grazing	49	12.25
Total	400	100.00

Source: Field Survey, 2026

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The Major Climatic Indices Accelerating Desertification in Auchi

Table 2 shows the major climatic indices accelerating desertification in Auchi. A close look at Table 2 reveals that strong and desiccating winds with 88 (22.00%) respondents ranked highest, it is followed by high temperature which recorded 76 (19.00%) respondents, delayed rainy season recorded 68 (17.00%) respondents, early cessation of rainy season recorded 63 (15.75%), and irregular rainfall 41,(10.25%) respondents of the sample population in the study area, Other major climatic indices accelerating desertification in the study area are reduced cloud cover 27 (6.75%) respondents, reduced relative humidity 21(5.25%) respondents, and drought 16 (4.00%) respondents of the sample population in the study area. Strong and desiccating winds, high temperature, delayed rainy season, early cessation of rainy season, and irregular rainfall are the major drivers of desertification in Auchi. This is in congruent with the earlier findings of Butu & Emeribe, 2015; NiMet, 2021; ICPC, 2021Emeribe *et al.*, 2022 that within the context of Auchi, climate change serves as a primary external driver, characterized by long-term shifts in temperature, precipitation patterns, winds of high velocity, and so forth.

Table 2: The Major Climatic Indices Accelerating Desertification in Auchi

T The Major Climatic Indices Accelerating Desertification in	Frequency	Percentage (%)
Early cessation of rainy season	63	15.75
Delayed rainy season	68	17.00.
Irregular rainfall	41	10.25
High temperature	76	19.00
Strong and desiccating winds	88	22.00.
Reduced relative humidity	21	5.25
Drought	16	4.00
Reduced cloud cover	27	6.75
`Total	400	100.00

Source: Field survey, 2026

The Impact of Desertification on the Environment of Auchi

The conducted field survey revealed the impact of desertification on the environment of Auchi, Edo State, Nigeria. The survey clearly reveals from Table 3 that low agricultural productivity, hot and dusty environment, shortage of food/hunger, unreliable rainfall, soil impoverishment, shortage of water, loss of arable land, loss of vegetation, excessive cold, health problems are the impact of desertification on the environment of auchi. Table 3 further shows that low agricultural productivity, and hot and dusty environment, ranked highest out of the sample population of 400 respondents in the study area because they recorded 52 (13%) respondents each. Shortage of food/hunger recorded 50 (12.50%) respondents, unreliable rainfall recorded 48 (12.00%) respondents, soil impoverishment recorded 41 (10.25%) respondents, shortage of water 38 (9.50%), loss of arable land, and loss of vegetation both recorded 34 (8.50%), excessive cold recorded 33 (8.25%), and health problems recorded 23 (5.75%) respondents out of the sample population in the study area.

Table 3 The Impact of Desertification on the Environment of Auchi

The Impact of Desertification on the Environment of Auchi	Frequency	Percentage(%)
Low agricultural productivity	52	13.00
Shortage of water	38	9.50
Hot and dusty environment	52	13.00
Health problems	23	5.75
Shortage of food/hunger	50	12.50
Loss of arable land	34	8.50
Loss of vegetation	34	8.50
Soil impoverishment	41	10.25

Unreliable rainfall	48	12.00
Excessive cold	33	8.25
Total	400	100

Source: Field survey, 2026

The Adaptation and Mitigation Strategies in Practice at Auchi

The adaptation and mitigation strategies adopted by the inhabitants of Auchi over the years include but not limited to the following: effective and regular creation and promotion of community environmental education, cover cropping, irrigation, afforestation, reforestation, rotational cropping/grazing, controlled lumbering, prohibition of laws against bush burning, controlled use of wood as fuel, planting of drought resistant crops, artificial water recharge, enforcement of environmental regulation, adoption of environmental building codes, and implementation of green building initiatives.

CONCLUSION

Climate change, as a global phenomenon characterized by long-term shifts in temperatures and weather patterns, poses significant threats across various sectors of which desertification has become a major concern in the savannah belts of the Sub-Saharan region. Auchi with its unique geographical location in the Guinea Savannah belt of Nigeria is vulnerable to desertification due to climate change. Desertification, which is land degradation in arid, semi-arid, and dry sub-humid areas resulting from climatic variations and human activities is evident in Auchi. This desertification no doubt, is expanding and the effects are devastating. In order that the impact of climate change on desertification in Auchi, Edo State, Nigeria are averted or at least reduced to the barest minimum, various adaptation and mitigation strategies which include effective and regular creation and promotion of community environmental education, cover cropping, irrigation, afforestation, reafforestation, rotational cropping/grazing, controlled lumbering, promulgation of laws against bush burning, controlled use of wood as fuel, planting of drought resistant crops, artificial recharge of water, enforcement of environmental regulation, adoption of environmental building codes, and implementation of green building initiatives

RECOMMENDATIONS

This paper investigates the impact of climate change on desertification in auchi, Edo State, Nigeria. Based on the findings of this paper, the following actionable policy recommendations are made: effective and regular creation and promotion of community environmental education, practicing of cover cropping, irrigation, afforestation, reafforestation, rotational cropping/grazing, controlled lumbering, promulgation of laws against bush burning, controlled use of wood as fuel, planting of drought resistant crops, artificial recharge of water, enforcement of environmental regulation, adoption of environmental building codes, implementation of green building initiatives, and creation of shelter belt.

Limitations

This paper is questionnaire-based. Questionnaire-based perception data may be subjective. For instance, 2026 population is a projection, not census figures from the actual or real population. In addition, no soil or remote sensing data were analyzed independently to validate the authenticity of the perceived desertification trends in Auchi.

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